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| 09/982,271 | 10/17/2001 | David P. Gurney | CM01968G | 7238 |
| 22917 | 7590 | 04/26/2006 | EXAMINER | |
| MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196 | | | ZHENG, EVA Y | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2611 | |

DATE MAILED: 04/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

09/982,271

Applicant(s)

GURNEY ET AL.

Examiner

Eva Yi Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Request for Continued Examination

1. The request filed on February 28, 2006, for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/982,271 is acceptable and a RCE has been established. An action on the RCE follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Where applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. The term "transmission channel mask" and "index output values" in claim 18 is indefinite because the specification does not clearly redefine the term.

Claim Objections

4. Claim 10 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claimed subject matter in Claim 10 is a redundancy of claim 9.

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5. Claims 1 and 9 are objected to because of the following informalities:

a) Regarding to claim 1, on line 3 and 5, please change: "first order" to – first predetermined order-- to keep claim language clear and consistent.

Appropriate correction is required.

b) Regarding to claim 9, on line 8, please change: "a storage medium" to – the storage medium – if this is the same storage medium as from prior lines.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-5, 9, 10, 12, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (US 5,883,929).

a) Regarding to claim 1, Wang et al. disclose a correlation method comprising the step of:

sampling a received composite signal to generate a plurality of original samples in a first order (82 in Fig. 6, 106 and 108 in Fig. 7; Col 9, L2-9);

reordering the original samples in the composite signal into a second predetermined order that is different from the first order (84 in Fig. 6; more details shown in Fig. 8); and

performing a transform on the re-ordered original samples (Col 10, L41-65).

Wang et al. disclose all the subject matters above except for the specific teaching of transmission from a plurality of source devices.

However, Wang et al's invention is related to satellite-cellular communication system, wherein earth station, network control center, user terminal, satellite-base are all transceivers (as shown in Fig. 1). Therefore, it is obvious to one of ordinary skill in art to recognize that the user terminal is capable to receive signals from network control center, satellite-base and other transceiver devices. By doing so, provide better synchronization with multi-transceivers in satellite communication system.

- b) Regarding to claim 2, Wang et al. disclose wherein the transform is selected from a group comprising: Fast Hadamard Transform (FHT), Fast Walsh Transforms, and Fast Walsh-Hadamard Transform (Col 10, L41-65).
- c) Regarding to claim 3, Wang et al. disclose wherein the received composite signal comprises at least one m-sequence (as shown in Fig. 3; Col 10, L20-25).
- d) Regarding to claim 4, Wang et al. disclose wherein the second predetermined order is based directly on a linear feedback shift register output state sequence (134 in Fig. 8).
- e) Regarding to claim 5, Wang et al. disclose wherein the received composite signal comprises at least one specially augmented m-sequence (as shown in Fig. 3; Col 10, L20-25).
- f) Regarding to claim 9, Wang et al. disclose a device comprising:
a receiver for receiving original samples of a composite signal (Fig. 6);

a linear feedback shift register state machine for generating a sequence of addresses to address a storage medium (as shown in Fig. 8);

a storage medium, coupled to the receiver and the state machine, for storing each of the original samples of the composite signal at a give address according to the sequence of addresses (86 in Fig. 6); and

a processor, coupled to the storage medium, for directly perform a transform on at least a portion of the original samples stored in the storage medium (84 in Fig. 6; Col 10, L41-65).

Wang et al. disclose all the subject matters above except for the specific teaching of transmission from a plurality of source devices.

However, Wang et al's invention is related to satellite-cellular communication system, wherein earth station, network control center, user terminal, statellite-base are all transceivers (as shown in Fig. 1). Therefore, it is obvious to one of ordinary skill in art to recognize that the user terminal is capable to receive signals from network control center, statellite-base and other transceiver devices. By doing so, provide better synchronization with multi-transceivers in satellite communication system.

g) Regarding to claim 10, Wang et al. disclose wherein the state machine comprises a linear feedback shift register (as shown in Fig. 8).

h) Regarding to claim 12, Wang et al. disclose wherein the state machine is a second storage medium (as shown in Fig. 8).

i) Regarding to claim 13, Wang et al. disclose wherein the linear feedback shift register state machine generates a specially augmented m-sequence (as shown in Fig. 3; Col 10, L20-25).

j) Regarding to claim 15, Wang et al. disclose wherein the transform is selected from a group comprising: Fast Hadamard Transform (FHT), Fast Walsh Transforms, and Fast Walsh-Hadamard Transform (Col 10, L41-65).

8. Claims 6-8, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (US 5,883,929), in view of Popovic (US 6,091,761).

a) Regarding to claim 6, Wang et al. disclose all the subject matters above except for the specific teaching of a generator polynomial.

However, Popovic discloses a communication system, wherein the predetermined order is based on a generator polynomial of at least one specially augmented m-sequence (Col 6, L58 – Col 7, L15).

Wang et al. disclose matrix M of Hadamard sequences (Col. 11). Therefore, it is obvious to one of ordinary skill in art to recognize that the m-sequence by Wang et al. could transform to polynomial by implement the teaching of Popovic. Therefore, provide easy calculation for correlation in a communication system.

b) Regarding to claims 7 and 8, Wang et al. disclose all the subject matters above except for the specific teaching of a dimension of the transform in relation with the number of available channels.

However, Popovic discloses wherein a dimension of the transform is equivalent to a number of available channels (as shown in Fig. 1; Col 4, L9-14). In addition, Popovic discloses wherein a dimension of the transform is different than a number of available channels (as shown in Fig. 2; Col 4, L40-45).

Therefore, it is obvious to one of ordinary skill in art to implement the correlation teaching of Popovic in the communication system of Wang et al.. By doing so, provide desirable correlation method in accordance with different modulation algorithm and produce synchronization in a communication system.

c) Regarding to claim 11, Wang et al. disclose all the subject matters above except for the specific teaching of the linear feedback shift register is a Fibonacci sequence generator.

However, Popovic wherein the linear feedback shift register is a Fibonacci sequence generator (equivalent as "Galois Field"; Col 6, L38-43).

Wang et al. disclose matrix M of Hadamard sequences (Col. 11). Therefore, it is obvious to one of ordinary skill in art to recognize that the m-sequence by Wang et al. could transform to sequence of Galois Field by the teaching of Popovic. Therefore, provide easy calculation for correlation in a communication system.

d) Regarding claim 17, Popovic discloses wherein the received composite sequence comprises only quasi-orthogonal sequences (inherent as m-sequence; Col 2, L1-24).

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9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (US 5,883,929), in view of Labedz et al (US 5,251,233).

Regarding to claim 16, Wang et al. disclose all the subject matters above except for the specific teaching of an analog-to-digital converter.

However, Labedz et al disclose a communication system comprising an A/D and producing I and Q signals (310 as shown in Fig. 3).

Wang et al. has shown convert input signal $r(t)$ to I and Q (as shown in Fig. 1). Analog to digital conversion is a common technology in communication system. Therefore, it is obvious to one of ordinary skill in art to implement the teaching of A/D of Labedz et al in the system of Wang et al. By doing so, provide desirable synchronization method in a communication system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Zheng
Examiner
Art Unit 2611

April 17, 2006


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER